Amendments to the Claims:

1. (currently amended) A method for reducing a blocking artifact in a video stream, the method comprising:

calculating an activity value representing the local activity around a block boundary between a plurality of adjacent blocks in the video stream;

determining a region mode for the block boundary according to the activity value;

adaptively determining a plurality of thresholds according to at least differences in the values of quantization parameters (QPs) of the adjacent blocks; ~~and~~

filtering a plurality of pixels around the block boundary to reduce the blocking artifact according to the region mode and the plurality of thresholds; and

adaptively determining a first threshold TH0_INTRA, a third threshold TH0_INTER, a fourth threshold TH1_INTRA, a fifth threshold TH2_INTRA, a sixth threshold TH1_INTER, and a seventh threshold TH2_INTER; wherein when determining the first, third, fourth, fifth, sixth, and seventh thresholds, at least taking into account differences in QPs of the adjacent blocks.

2. (cancelled)

3. (currently amended) The method of claim 1 ~~claim 2~~, further taking into account a user defined offset (UDO) allowing the first, third, fourth, fifth, sixth, and seventh threshold levels to be adjusted according to the UDO value.

4. (original) The method of claim 3, wherein:

the first threshold TH0_INTRA is calculated as:

$$TH0\_INTRA = -2 + (QP1 + QP2) + 2 \cdot UDO;$$

the third threshold TH0_INTER is calculated as:

$$TH0\_INTER = -2 + (QP1 + QP2) - 2 \cdot MVI - 2 \cdot BFlag + 2 \cdot UDO;$$

the fourth threshold TH1_INTRA is calculated as:

$$TH1\_INTRA = -1 + \frac{1}{2} \cdot (QP1 + QP2) + \frac{1}{2} \cdot |QP1 - QP2| + UDO;$$

the fifth threshold TH2_INTRA is calculated as:

$$TH2\_INTRA = -2 + (QP1 + QP2) + |QP1 - QP2| + 2 \cdot UDO;$$

the sixth threshold TH1_INTER is calculated as: and

$$TH1\_INTER = a + \frac{1}{2} \cdot (QP1 + QP2) + \frac{1}{2} \cdot |QP1 - QP2| + 2 \cdot MVI - 2 \cdot BFlag + UDO;$$

the seventh threshold TH2_INTER is calculated as:

$$TH2\_INTER = a + (QP1 + QP2) + \frac{1}{2} \cdot |QP1 - QP2| - 2 \cdot MVI - 2 \cdot BFlag + 2 \cdot UDO;$$

wherein MVI represents the motion vector indicator; if the picture is B-picture, BFlag is set to 1, otherwise, BFlag is set to 0; and if the 8x8 block boundary is also a macroblock (MB) boundary, *a* is set to –1, otherwise, *a* is set to –3.

5. (original) The method of claim 4, wherein calculating the activity value comprises summing absolute differences between pixels V_l around the block boundary as follows:

$$ACTIVITY = \sum_{l=4}^{6} |v_l - v_{l+1}| + \sum_{l=8}^{10} |v_l - v_{l+1}|$$

6. (original) The method of claim 5, wherein:

if at least one of the adjacent blocks is an intra-coded block:

if the activity value is greater than the first threshold TH0_INTRA, determining the region mode to be an active region;

if the activity value is less than the first threshold TH0_INTRA but greater than a second threshold, determining the region mode to be a smooth region; and

if the activity value is less than the second threshold, determining the region mode to be a dormant region; and

if none of the adjacent blocks are intra-coded blocks:

if the activity value is greater than the third threshold TH0_INTER, determining the region mode to be an active region;

if the activity value is less than the third threshold TH0_INTER but greater than the second threshold, determining the region mode to be a smooth region; and

if the activity value is less than the second threshold, determining the region mode to be a dormant region.

7. (original) The method of claim 6, wherein the second threshold is fixed at a predetermined value.

8. (original) The method of claim 7, wherein the predetermined value is 6.

9. (original) The method of claim 6, further comprising:

if the region mode is active region,

if at least one of the adjacent blocks is an intra-coded block and a high frequency component (c_3) is less than the fourth threshold TH1_INTRA, or if none of the adjacent blocks is an intra-coded block and the high frequency component (c_3) is less than the sixth threshold TH1_INTER, filtering the pixels around the block boundary using a first filter;

if the region mode is smooth region,

if at least one of the adjacent blocks is an intra-coded block and the absolute value of the difference of the pixel values on either side of the block boundary is less than the fifth threshold TH2_INTRA, or if none of the adjacent blocks is an intra-coded block and the absolute value of the difference of the pixel values on either side of the block boundary is less than the seventh threshold TH2_INTER, filtering the pixels around the block boundary using a second filter; and

if the region mode is dormant region,

if at least one of the adjacent blocks is an intra-coded block and the absolute value of the difference of the pixel values on either side of the block boundary is less than the fifth threshold TH2_INTRA, or if none of the adjacent blocks is an intra-coded block and the absolute value of the difference of the pixel values on either side of the block boundary is less than the seventh threshold TH2_INTER, filtering the pixels around the block boundary using a third filter.

10. (original) The method of claim 9, wherein the high frequency component (c_3) is calculated using pixels v_6, v_7, v_8, v_9 around the block boundary as follows:

$c_3 = (v_6-v_7+v_8-v_9)/2$.

11. (original) The method of claim 9, wherein the first filter is a one dimensional filter formed by using a 4-point Hadamard Transform (HT), wherein the high frequency coefficient of the HT is reduced to 0 for frame-coded pictures.

12. (original) The method of claim 9, wherein the first filter is a one dimensional filter formed by using a 4-point Hadamard Transform (HT), wherein the high frequency coefficient of the HT is reduced to one half for field-coded pictures.

13. (original) The method of claim 9, wherein the filtered pixels are further refined by adjusting a pixel quantized with a larger QP to have more change in value than a pixel quantized with a smaller QP.

14. (original) The method of claim 13, wherein a first weighting value WT1 and a second weighting value WT2 are used for adjusting the filtered pixels and are obtained from a first quantization parameter QP1 of a first adjacent block and a second quantization parameter QP2 of a second adjacent block as follows:

$$WT1 = QP1 / (QP1 + QP2), \quad WT2 = QP2 / (QP1 + QP2)$$

15. (original) The method of claim 8, wherein if the quantization parameters (QPs) of the adjacent blocks are the same, symmetric second and third filters are used to filter the pixels around the block boundary for smooth and dormant region modes, respectively; and

if the QPs of the adjacent blocks are not the same, asymmetric second and third

filters are used to filter the pixels around the block boundary for smooth and dormant region modes, respectively.

16. (original) The method of claim 15, further comprising:

when the region mode is smooth region and the QPs of the adjacent blocks are the same, filtering the pixels around the block boundary with an N-tap symmetric second filter;

when the region mode is smooth region and the QPs of the adjacent blocks are not the same, filtering the pixels around the block boundary with an M-tap asymmetric second filter;

when the region mode is dormant region and the QPs of the adjacent blocks are the same, filtering the pixels around the block boundary with a K-tap symmetric third filter; and

when the region mode is dormant region and the QPs of the adjacent blocks are not the same, filtering the pixels around the block boundary with an L-tap asymmetric third filter.

17. (original) The method of claim 16, wherein:

N=5 and the symmetric second filter is [1 3 8 3 1]/16;

M=5 and the asymmetric second filter is [1 2 8 3 2]/16 and [2 3 8 2 1]/16;

K=5 and the symmetric third filter is [1 2 2 2 1]/8; and

L=5 and the asymmetric third filter is [1 1 2 2 2]/8 and [2 2 2 1 1]/8.

18. (original) The method of claim 9, wherein filtering the pixels around the block boundary comprises first filtering the pixels at the block boundary and next filtering pixels not adjacent to the pixels at the block boundary.

19. (original) The method of claim 1, further comprising if the video stream comprises interlaced video, performing an interpolation operation to estimate pixel values in an interlaced field before filtering the pixels around the block boundary.

20. (original) The method of claim 1, further comprising determining a filtering range according to block coding types of the adjacent blocks in the video stream; wherein the filtering range specifies a number of pixels to filter around the block boundary.

21. (original) The method of claim 20, wherein according to the block coding types of the adjacent blocks in the video stream, determining the filtering range to be up to eight pixels around the block boundary.

22. (original) The method of claim 20, wherein determining a filtering range according to the block coding types of the adjacent blocks in the video stream further comprises:

if at least one of the adjacent blocks is an intra-coded block, determining the filtering range to be up to four pixels around the block boundary; and

if none of the adjacent blocks are intra-coded blocks, determining the filtering range to be up to eight pixels around the block boundary.

23. (original) The method of claim 1, wherein the video stream is an MPEG video stream.